Acupuncture for the Treatment of Withdrawal Symptoms in Detoxification Processes

October, 2000

Prepared by:

Nancy A. South
Planning and Service Monitoring
2nd Floor, 10909 Jasper Avenue
Edmonton, AB T5J 3M9

AADAC
Alberta Alcohol and Drug Abuse Commission
An Agency of the Government of Alberta

Abstract

Acupuncture is an ancient Chinese method that has been used to treat a variety of ailments. The use of acupuncture in treating withdrawal symptoms associated with alcohol and drug dependence has increased steadily. The purpose of this paper is to examine the literature to determine whether acupuncture is useful in reducing withdrawal symptoms during detoxification from alcohol and other drugs. If so, does it result in any better outcomes than standard care for reducing withdrawal symptoms during detoxification. A total of 31 published studies, one textbook, and four unpublished manuscripts were reviewed which addressed the use of and effectiveness of acupuncture in substance abuse treatment. Research results of using acupuncture during detoxification from alcohol and other drug dependence are mixed. Relief of withdrawal symptoms from detoxification has been reported for alcohol, benzodiazepine and opioid dependence and to a lesser extent for cocaine dependence. However, there are many methodological limitations to the research preventing definitive conclusions being drawn. Although some clinical experience exists to suggest that acupuncture detoxification is a safe and acceptable practice for substance abuse patients, inadequate research has been conducted to assess its overall efficacy as a modality, in and of itself, for alcohol and drug abuse treatment. Recognizing that the treatment of alcohol and other drug dependence is complex and not likely to be resolved by any single therapy or strategy, acupuncture may be useful as an adjunct treatment. There is sufficient evidence of the potential value of acupuncture to encourage further studies. Research that replicates existing acupuncture studies using comparable and more valid methodologies is warranted before sound conclusions about the efficacy of acupuncture in treating withdrawal symptoms during the detoxification phase can be reached.

Key Words: acupuncture, addiction, detoxification

Acupuncture for the Treatment of Withdrawal Symptoms in Detoxification Processes

Introduction

The treatment of substance abuse has traditionally involved a variety of approaches including individual counseling, 12-step support groups, talk therapies, regular medical appointments, in-patient stays in detoxification centres and hospitals, and self-help approaches such as Alcoholics Anonymous (Adams, 1999; Lao, 1995). In recent years, however, a growing number of practitioners of Chinese medicine also have begun to use adjunct therapies, such as acupuncture, in the detoxification processes involved in treating withdrawal symptoms from alcohol and drug abuse.

The primary aim for using adjunct therapies in the process of substance abuse detoxification is to effectively reduce symptoms of withdrawal in a safe and controlled environment. The use of acupuncture in treating withdrawal symptoms associated with alcohol and drug dependence is seen as advantageous, and consequently has been on the increase, because it is said to not cause the side effects often associated with sedatives used in standard medical detoxification approaches, is simple to administer, does not introduce much suffering for the patient, and involves a relatively short treatment course (Meng, 1995; Toteva & Milanov, 1996). Four key ideological reasons for avoiding sedative medication used in medical detoxification have been cited in the research literature. First, is a belief that it is inappropriate to replace one 'addictive' drug with another, even for a short duration of time. Secondly, is a belief that sedative drugs can 'dull the

mind' at a time when patients require intensive psychological treatment. Thirdly, is a belief that medication of any kind should be avoided on quasi-ecological grounds. Finally, some practitioners simply dislike involving the medical profession at any stage in the treatment of addictions (Brewer, 1995).

It also has been argued that acupuncture is more cost effective because a single treatment session is much less expensive than a day in a residential detoxification program (Meng, 1995). However, Shwartz, Saitz, Mulvey, and Brannigan (1999) note that, although the true costs of acupuncture versus residential treatment have not been measured, the economic benefit that is thought to exist may be lost because the average duration of treatment using acupuncture does not involve a single session. Rather, it is about four months, so when added together, is not much different than the cost of a week in a residential detoxification program.

Studies on the effective use of acupuncture in the treatment of withdrawal and detoxification from substance abuse were first reported in the 1970s (Wen & Cheung, 1973; Wen & Teo, 1975; Wen, 1979). However, during the past thirty years, some skepticism also has arisen concerning the efficacy of acupuncture as a medical treatment that produces any better outcomes than standard care for alcoholism and drug abuse. Hence, further studies continue to be conducted to investigate the success of acupuncture for reducing withdrawal symptoms in detoxification processes. The main objective of the present paper is to review the most recent findings from these studies to determine whether acupuncture is useful in reducing withdrawal symptoms during detoxification from alcohol and

other drugs. If so, does it result in any better outcomes than standard care for reducing withdrawal symptoms during detoxification.

Definitions

Detoxification

Detoxification refers to the initial phase of treatment for addictions when patients experience the direct effects of drug or alcohol tolerance associated with chronic substance use. The therapeutic aim of the detoxification phase is to "counter act the effects of drug withdrawal and return the individual to a relatively 'neutral' or 'normal' physiological and emotional state" (Moner, 1996, p.83). Standard treatment at this stage lasts from approximately three to seven days (Moner, 1996).

Acupuncture

Acupuncture is an ancient Chinese method that has been used to treat a variety of ailments for over twenty-five centuries. It involves stimulation of specific external locations of the body typically by the insertion of needles. These external body locations are believed to interconnect with different body organs by pathways called meridians. According to traditional Chinese medicine, stimulation of acupuncture points alters the flow of Qi (vital energy) throughout the body, restoring balances of both meridians and the "mind" (*Nei Jing* as cited in Lao, 1995). Western theories of the how acupuncture works are multiple and varied and beyond the scope of this paper. However, simply stated several systems have been implicated in acupuncture's mode of action including

the endocrine system, sympathetic and parasympathetic nervous system and immune system (Lao, 1995; Appleton & Turner, 1996).

History of Acupuncture in Treating Substance Abuse

In North America, interest in acupuncture began in the United States in the early 1970s with Richard Nixon's visit to China. During that trip a reporter for the *New York Times* underwent an emergency appendectomy in which acupuncture was used to treat abdominal pain following surgery. His reports of pain relief kindled interest in the procedure that, in turn, prompted substantial research into how acupuncture works. Since then, general use of and interest in acupuncture by Western practitioners has grown steadily (Appleton & Turner, 1996).

In the area of substance abuse treatment, interest in acupuncture originated with the work of a Hong Kong neurosurgeon. In 1972, Dr. Wen administered acupuncture anesthesia to a patient who was in heroin withdrawal and discovered that the withdrawal symptoms disappeared (Wen and Cheung, 1973 as cited in Appleton and Turner, 1996). Since then it has been the subject of clinical practice and research interest and has been used in all stages of addiction treatment. For detoxification, it has been used to relieve physical symptoms of withdrawal. For longer-term rehabilitation, acupuncture has been used to reduce mood disorders such as depression and to induce a general state of relaxation. Similarly for relapse prevention, it has been used to encourage relaxation and to relieve drug cravings (Moner, 1996).

The insertion of acupuncture needles into specific locations in the ear is known as auricular acupuncture. Auricular acupuncture was developed in 1955

by Dr. Paul Nogier, a French neurologist (Appleton & Turner, 1996). Auricular acupuncture has been used since the mid-1970s as a detoxification treatment for substance abuse.

A standard treatment protocol for auricular acupuncture detoxification was developed between 1973 and 1975 by Dr. Michael Smith at New York Medical College's Lincoln Hospital (Mitchell, 1995). During this outpatient treatment, clients sit in a room together with three to five very fine needles inserted at specific locations in the outer ear. The needles are inserted under the skin of the ear, and are kept in place for approximately 45 minutes. Clients may sit for a while following their treatment. Either at the time of admission, or following treatment, clients also receive herbal tea that helps them to relax.

Prior to each treatment clients provide a urine sample that is tested for drugs in their system. They typically return for treatments until they show ten consecutive clean urine samples. At this point they often begin participation in other treatment programs such as Alcoholic Anonymous or Narcotics Anonymous.

Reports on the number of programs using acupuncture vary depending on the source and field of interest. The National Acupuncture Detoxification Association (NADA) established by Dr. Smith in 1985 is an international organization that provides training and consultation in acu-detox for programs worldwide. According to NADA, acupuncture treatment of addiction is commonplace in the drug court movement and used in over 200 programs across the United States (Sorensen, 1998). Given an estimated 2,500 facilities

providing detoxification services in the U.S. (SAMSHA Facility Locator, 2000), this represents about 8% of programs that are using acupuncture. Further in the U.S., acupuncture has expanded to other fields of stress reduction and mental health and is reportedly used in over 500 hospitals and clinic programs (Appleton & Turner, 1996). In Western Europe there are over 200 acu-detox programs (Appleton & Turner, 1996). Although the use of acupuncture in treating addictions is more limited in Canada, it also is attracting attention at a growing number of treatment centres in Ontario, and more recently, in British Columbia (Adams, 1999; Appleton & Turner, 1996) and Nova Scotia (Canadian Centre on Substance Abuse, 2000).

Method

Identification of Studies for Review

A computerized literature search was conducted on 11 electronic databases including: Project CORK, ETOH, Medline, CINAHL [University of Calgary], HealthStar [University of Calgary], Psychlit, Centre for Addiction and Mental Health/Addiction Research Foundation Library, CANBASE [Canadian Centre on Substance Abuse], Alcohol Studies Database [Rutgers], National Clearinghouse for Drug and Alcohol Information, EUREKA [University of Lethbridge]. The terms (1) *acupuncture*, (2) *drug misuse*, (3) *detoxification*, and (4) *alcohol related* were used in combination to identify trials published within the last five years (from 1995 to present). Eleven additional studies that were published earlier than five years ago also were identified because they either dealt specifically with the use

of acupuncture in detoxification settings, or assisted in providing an overview of the history of substance abuse research using acupuncture.

Inclusion Criteria

To be included in the review of the literature, studies had to meet three main methodological criteria. First, studies included only those published in English. Secondly, studies had to take place in private or publicly funded health settings for addictions. Preference was for centres that only provide detoxification programs. Finally, studies were confined to those that involved either alcohol or drug addictions. A total of 31 published studies, one textbook, and four unpublished manuscripts were reviewed which addressed the use of and effectiveness of acupuncture in substance abuse treatment.

Results

Research studies of acupuncture typically involve the use of a treatment group and control group for comparison. Patients in the treatment, or 'true,' group receive needle insertion at acupuncture points specific for the treatment of substance abuse. In contrast, control patients receive nonspecific points known as 'sham' acupuncture (Culliton, & Kiresuk, 1996). In a study designed to test subjects' ability to identify which ear receives true or sham acupuncture, Margolin, Chang, Avants, and Kosten (1993), subjects were unable to differentiate whether they received true or sham treatment.

Acupuncture for the Treatment of Alcohol Dependence: Success Rates

Primary research reports indicate that acupuncture techniques have been successful in the treatment of alcoholism (Gaa'l, 1977). More recent studies also

exist to support these early findings (Blow, 1994; Cove, 1996; Lao, 1995). However, while research results suggest that acupuncture may be particularly effective for clients whose primary substance of abuse is alcohol, Shwartz et al (1999) also suggest that it may matter less what type of treatment a person receives than what is her/his recent detoxification history. In a study of readmission rates of treatment at residential treatment programs versus at outpatient acupuncture programs, clients in both types of treatment who were previously admitted to detox programs within a period of one year experienced much less success, and are much more likely to have higher rates of readmission for the treatment of withdrawal symptoms.

Clinicians in some studies have stressed that the use of acupuncture at the detoxification phase is intended to provide relief of withdrawal-related symptoms. The reported benefits from acupuncture in the detoxification phase of treating alcoholism, both as a sole addiction and for persons with multiple addictions, include reduced craving, anxiety, hostility, stress, insomnia, depression, muscular pains; and improved vitality, relaxation, sleep, appetite, and abstinence (Cove, 1996; Lao, 1995). However, to achieve such benefits in some studies, it also was considered crucial that acupuncture be linked to other conventional treatment methods, such as individual counseling, group therapy, regular medical appointments, and self-help approaches such as Alcoholics Anonymous, to provide the most effective treatment regimen (Lao, 1995). Hence, inadequate research has been conducted to assess its overall efficacy as a modality, in and

of itself, for the reduction of withdrawal symptoms during the detoxification phase from alcoholism.

Acupuncture for the Treatment of Drug Dependence: Success Rates

Wen and Cheung's study (1973) of electroacupuncture applied to 30 opium and 10 heroin abusers is typical of the early literature on the use of acupuncture to treat substance abuse. This research adopted a single ear point and patient-adjusted electrical stimulation. The total number of treatments received varied according to the needs and responses of individual patients. Overall, the relief of withdrawal symptoms was reported, with all patients described as having effective responses to treatment.

Since Wen and Cheung (1973) first reported that acupuncture was effective in the treatment of drug addiction, almost thirty years of experimental and clinical evidence has accrued that both supports and refutes their initial findings. Depending on the primary drug of choice, the research literature contains contradictory findings in the detoxification from drug abuse. Cove (1996), for example, found that five-point auricular acupuncture is particularly "effective, inexpensive, and safe" (p. 170) for treatment of patients with benzodiazepine and opioid dependence. However, the majority of patients for which cocaine is their primary drug of abuse were not responsive to acupuncture.

In contrast, Avants, Margolin, Chang, Kosten, and Birch (1995) found that cocaine abusers who received a single addiction acupuncture intervention reported less nervousness and depression and more relaxation, sleepiness, and lightheadedness than those who received sham acupuncture. Killeen and Brady

(1997) also report on preliminary data that suggests there may be some immediate benefit from a single auricular acupuncture intervention with regard to the craving and symptoms of discomfort that often accompany early withdrawal. Acupuncture has also been shown to be at least as effective as standard medications used in the treatment of acute craving (Margolin, Avants, Chang, & Kosten, 1995; Richard, Montoya, Nelson, & Spence, 1995).

Washburn et al. (1993) randomly assigned 100 heroin-addicted clients to either standard true or sham acupuncture treatments. Subjects who received true acupuncture attended the acupuncture clinic more days and remained in treatment longer than did those in the control group. However, only 20 of the 100 clients completed the Washburn et al. (1993) study. Although the self-report of frequency of heroin suggested that the true acupuncture treatment condition was successful, the limited sample size, high drop out rate, and reliance on self-report measures do not permit drawing definitive conclusions.

Safety

Many investigators feel that the paucity of adverse reactions to acupuncture in the existing research clearly shows the safety of the procedure (Culliton & Kiresuk, 1996). Appleton and Turner (1996) explain that acupuncture is safe, except for individuals with bleeding disorders. Pregnancy requires special and fewer acupuncture points. Side effects are uncommon and minor. Reported side effects include initial slight dizziness and slight momentary bleeding when the needles are withdrawn. Infection is very rare as disposable needles are used. Acupuncture is not addictive.

Limitations

Although acupuncture holds promise, studies specifically involving the use of acupuncture in the treatment of alcohol and drug abuse is still in a relatively early stage. Another review of 22 controlled clinical trials of acupuncture for addiction treatment found that the strength of positive findings varied inversely with the method rigor of the study (Tier Riet et al., 1990 cited in Sorensen, 1998). Several researchers have noted that much of the existing research is methodologically questionable in one or more ways (see list below) (Brewington, Smith, & Lipton, 1994; Culliton & Kiresuk, 1996; Killeen, & Brady, 1997; McLellan, Grossman, Blaine, & Haverkos, 1993; Moner, 1996; Otto, Quinn, & Sung, 1998; Shwartz et al., 1999). These other factors may have potentially confounding effects on the outcomes of existing research; therefore, conclusions drawn from these studies must be considered with caution.

- Incomplete, selective, or biased literature reviews;
- Nonstandardized terminology and methodology in the provision and study of acupuncture;
- Inappropriate diagnostic criteria in the selection of subjects (e.g., lack of control for multiple patient variables such as severity of addiction, socioeconomic status, concurrent use of substances, race, sex, marital status, education status, etc.);
- Compromise of the study design because of opt-out options or self-assignment to treatment group, rather than randomized assignment to treatment modality;
- Inappropriate choice of treatment comparison groups or lack of such comparisons/control groups;
- Failure to measure treatment compliance and to include a multidimensional range of outcomes (e.g., outcomes in terms of psychological, family, social, and employment status);
- lack of validity of outcome measures (e.g., unverified self-reports);
- Failure to include cost analyses of treatment and outcomes;

- Use of noncomparably trained and committed therapists in treatment groups;
- Use of noncomparably time-intensive or therapist-intensive treatments;
- Failure to account for placebo and nonspecific treatment effects;
- Inadequate initial sample size;
- Inadequate follow-up intervals;
- High dropout rates and inadequate handling of dropout data;
- Acupuncture used as an adjunct therapy in combination with conventional treatment methods; and
- Failure to distinguish statistical significance from clinical significance.

Conclusion

Although some clinical experience exists to suggest that acupuncture detoxification is a safe and acceptable practice for substance abuse patients, inadequate research has been conducted to assess its overall efficacy as a modality, in and of itself, for alcohol and drug abuse treatment. Because of research design, sample size and other factors, results are inconclusive.

While it has not been proven ineffective in the treatment of substance abuse, there also is "no clear evidence that acupuncture is effective compared to placebo or to existing treatments in the detoxification, primary rehabilitation, or relapse prevention" (McLellan et al., 1993, p. 575) of alcohol or drug dependence. Despite this, interest and use of acupuncture persists.

Recognizing that the treatment of alcohol and other drug dependence is complex and not likely to be resolved by any single therapy or strategy, acupuncture may be useful as an adjunct treatment. There is sufficient evidence of the potential value of acupuncture to encourage further studies. Research that replicates existing acupuncture studies using comparable and more valid methodologies is warranted before sound conclusions about the efficacy of

acupuncture in treating withdrawal symptoms during the detoxification phase can be reached.

Bibliography

Ackerman, R. W., (1991). Acupuncture detoxification for pregnant substance abusers. Unpublished manuscript.

Adams, C. (1999). Teaching addicts to re-establish the body-mind connection. The Journal of Addiction and Mental Health, 2, 12-14.

Appleton, S., & Turner, T. (1996). Auricular acupuncture in addiction treatment: A brief worldwide review and selected Canadian experience. Addictions: An International Research Journal, 1, 51-60.

Avants, S. K., Margolin, A., Chang, P., Kosten, T. R., & Birch, S. (1995). Acupuncture for the treatment of cocaine addiction. Investigation of a needle puncture control. Journal of Substance Abuse Treatment, 195-205.

Blow, D. (1994). The acupuncture treatment of alcohol and chemical dependency. Journal of Chinese Medicine, 45, 5-8.

Brewer, C. (1995). Second-line and 'alternative' treatments for alcohol withdrawal: Alpha-agaonists, beta-blockers, anticonvulsants, acupuncture, and neuro-electric therapy. Alcohol & Alcoholism, 30, 799-803.

Brewington, V., Smith, M., & Lipton, D. (1994). Acupuncture as a detoxification treatment: An analysis of controlled research. Journal of Substance Abuse Treatment, 11, 289-307.

Bullock, M. L., Kiresuk, T. J., Pheley, A. M., Culliton, P. D., & Lenz, S. K. (1999). Auricular acupuncture in the treatment of cocaine abuse. A study of efficacy and dosing. Journal of Substance Abuse Treatment, 16, 31-38.

Canadian Centre on Substance Abuse. (2000). Drug Dependency Services opens free acupuncture clinics in Halifax. CCSA's Action News, Vol.X, No.2.

Cove, G. (1996). Is auricular acupuncture beneficial in the inpatient treatment of substance-abusing patients? Journal of Substance Abuse Treatment, 2, 165-171.

Culliton, P. D., & Kiresuk, T. J. (1996). Overview of substance abuse acupuncture treatment research. The Journal of Alternative and Complementary Medicine, 2, 149-159.

Dale, R. A. (1993). Addictions and acupuncture: The treatment methods, formulae, effectiveness and limitations. American Journal of Acupuncture, 21, 247-266.

Gaa'l, C. L. (1977). Ear-acupuncture relaxation therapy in alcoholics: Report on a follow-up survey. Medical Journal of Australia, 2, 179-180.

Killeen, T.K., & Brady, K.T., (1997). A preliminary study of the effects of auricular acupuncture on alcohol and drug withdrawal symptoms. Substance Abuse, 18, 119-124.

Lao, H. (1995). A retrospective study on the use of acupuncture for the prevention of alcoholic recidivism. American Journal of Acupuncture, 23, 29-33.

Lipton, D. S., Brewington, V., & Smith, M. (1994). Acupuncture for crack-cocaine detoxification: Experimental evaluation of efficacy. Journal of Substance Abuse Treatment, 11, 205-215.

Margolin, A., & Avants, S. K., (no date). Acupuncture for cocaine abuse: Research findings, methodological issues, and patient-treatment matching. In Stine, S. M., & Kosten, T. R., New treatments for opiate dependence, 171-189.

Margolin, A., Avants, K., Chang, P., & Kosten, T. R. (1995). Acupuncture for the treatment of cocaine dependence in methadone-maintained patients. American Journal of Addictions, 2, 194-201.

Margolin, A., Avants, K., & Kleber, H. D. (1998). Rationale and design of the cocaine alternative treatments study (CATS): A randomized, controlled trial of acupuncture. The Journal of Alternative and Complementary Medicine, 4, 405-418.

Margolin, A., Chang, P., Avants, S. K., & Kosten, K. R. (1993). Effects of sham and real auricular needling: Implications for trials of acupuncture for cocaine addiction. American Journal of Chinese Medicine, 21, 103-111.

McLellan, A.T., Grossman, D.S., Blaine, J.D., & Haverkos, H.W. (1993). Acupuncture treatment for drug abuse: A technical review. Journal of Substance Abuse Treatment, 10, 569-576.

Meng, C. (1995). Advances in studies on acupuncture abstinence. Journal of Traditional Chinese Medicine, 15, 301-307.

Mitchell, E. R. (1995). Fighting Drug Abuse With Acupuncture. The Treatment That Works. Berkeley, CA: Pacific View Press.

Moner, S. E. (1996). Acupuncture and addiction treatment. Journal of Addictive Diseases, 15, 79-100.

Moore, T. L., & Jadlos, T. M. (1999). Central city concern. Portland addictions Acupuncture centre. Program evaluation. Unpublished manuscript.

Otto, K. C., Quinn, C., & Sung, Y. F. (1998). Auricular acupuncture as an adjunctive treatment for cocaine addiction. American Journal on Addictions, 7, 164-170.

Richard, A. J., Montoya, I. D., Nelson, R., & Spence, R. T. (1995). Effectiveness of adjunct therapies in crack cocaine treatment. Journal of Substance Abuse Treatment, 12, 401-413.

Sapir-Weise, R., Berglund, M., Frank, A., & Kristenson, H. (1999). Acupuncture in alcoholism treatment: A randomized out-patient study. Alcohol & Alcoholism, 34, 629-635.

Shwartz, M., Saitz, R., Mulvey, K., & Brannigan, P. (1999). The value of acupuncture detoxification programs in a substance abuse treatment system. Journal of Substance Abuse Treatment, 17, 305-312.

Smith, M., Brewington, V., & Culliton, P. D. (1998). Auricular acupuncture for addiction-controlled research. Unpublished manuscript.

Smith, M., Culliton, P. D., Rodham, H. E., Brewington, V., Hinckley, S., Kaptchuk, T., Kotz, R., Lewith, G. T., Margolin, A., Parisian, S., Singh, K., & Weng, T. (1996). Discussion of substance abuse treatment. Journal of Alternative and Complementary Medicine, 2, 161-165.

Sorensen, J.L. (1998). Chapter 2. In S. Lamb, M. Greenlich, & D. McCarty (Eds.), Bridging the Gap Between Practice and Research: Forging Partnerships with Community-Based Drug and Alcohol Treatment. Washington, D.C: National Academy Press.

Substance Abuse and Mental Health Services Administration (SAMHSA) of the U.S. Department of Health and Human Services. (2000). Substance Abuse Treatment Facility Locator. (on-line directory of treatment facilities http://findtreatment.samhsa.gov).

Taub, C. B. (1993). Report on acupuncture substance abuse treatment adjunct. Unpublished manuscript. National Acupuncture Detoxification Association, Inc.

Toteva, S., & Milanov, I. (1996). The use of body acupuncture for treatment of alcohol dependence and withdrawal syndrome: A controlled study. American Journal of Acupuncture, 24, 19-25.

Washburn, A. M., Fullilove, R. E., Fullilove, M. T., Keenan, P. A., McGee, B., Morris, K. A., Sorensen, J. L., & Clark, W. W. (1993). Acupuncture heroin detoxification: A single-blind clinical trial. Journal of Substance Abuse Treatment, 10, 345-351.

Wells, E. A., Jackson, R., Diaz, O. R., Stanton, V., Saxon, A. J., & Krupski, A. (1995). Acupuncture as an adjunct to methadone treatment services. American Journal on Addictions, 4, 198-214.

Wen, H. L. (1979). Acupuncture and electrical stimulation (AES) outpatient detoxification. Modern Medicine of Asia, 15, 39-43.

Wen, H. L., & Cheung, S.Y.C. (1973). Treatment of drug addiction by acupuncture and electrical stimulation. Asian Journal of Medicine, 9, 138-141.

Wen, H. L., & Teo, S. W. (1975). Experience in the treatment of drug addiction by electroacupuncture. Modern Medicine of Asia, 11, 23-24.